Method and System for Mobile Station Positioning
in Cellular Communication Networks

Abstract

A system of cell phone positioning in real time is provided with specialized location device installations on multiplicity of base stations BSs in CDMA and TDMA cellular communication networks. The purpose of the positioning system is to enable tracking and locating large quantities of anonymous mobile cell phones MS in any number of network cells to be used for real time traffic-forecasting systems, emergency services E911, and other client-initiated position requests. Location data thus obtained can be continuously updated from vehicular-based cellular phones, collected, processed and used as a basis for input to intelligent transportation systems, such as real time urban traffic guidance for vehicular congestion and intelligent traffic control systems. The system is capable of covering large urban geographical areas and number of independent cell structures serving thousands of mobile cell phone clients. It is an independent plug-in solution with specialized synchronized location device installations in each cell BS. Centrally located specialized location software based on Time of Arrival (TOA) and Time Difference of Arrival (TDOA) methods for high speed location processing in central Location Database Server (LDS). The inventive system consists of number of component functions: Operator-initiated functions, location device functions and software enabled positioning functions.